

# OBSERVATIONS & RECOMMENDATIONS

After reviewing data collected from **WHITE OAK POND** the program coordinators recommend the following actions.

## FIGURE INTERPRETATION

- Figure 1: These graphs illustrate concentrations of chlorophyll-a in the water column. Algae are microscopic plants that are a natural part of lake ecosystems. Algae contain chlorophyll-a, a pigment necessary for photosynthesis. A measure of chlorophyll-a can indicate the abundance of algae in a lake. The historical data (the bottom graph) show a *variable* in-lake chlorophyll-a trend, with the 2000 concentrations climbing well above the New Hampshire mean reference line. August chlorophyll concentrations indicated an algae bloom. The dominant algae in July were golden-browns, which can give off a fishy odor when highly abundant. Phosphorus concentrations of the Inlets were all higher in August. As more phosphorus entered the pond, it could have caused an excess of algae growth as it became concentrated in the pond. Please be sure to note any strange odors or a change in the appearance of the water in the future, as it will help us to identify any future algae problems in the pond. While algae are present in all lakes, an excess amount of any type is not welcomed. Concentrations can increase when there are internal and external sources of phosphorus, which is the nutrient algae depend upon for growth. It's important to continue the education process and keep residents aware of the sources of phosphorus and how it influences lake quality.
- Figure 2: Water clarity is measured by using a Secchi disk. Clarity, or transparency, can be influenced by such things as algae, sediments from erosion, and natural colors of the water. The graphs on this page show historical and current year data. The lower graph shows a *stable* trend in lake transparency. Overall, transparency readings were lower this season compared with the readings in 1999. The high algal abundance in August did not greatly affect the transparency of the lake. The transparency this year was below the state mean. The 2000 sampling season was considered to be wet and, therefore, average transparency readings are expected to be slightly lower than last year's readings. Higher amounts of rainfall usually cause more eroding of sediments into the lake and streams, thus decreasing clarity.

- Figure 3: These figures show the amounts of phosphorus in the epilimnion (the upper layer in the lake) and the hypolimnion (the lower layer); the inset graphs show current year data. Phosphorus is the limiting nutrient for plants and algae in New Hampshire waters. Too much phosphorus in a lake can lead to increases in plant growth over time. These graphs show a *slightly improving* trend for in-lake phosphorus levels, meaning concentrations have decreased. Mean phosphorus concentrations remained below the New Hampshire median in both layers this season. Epilimnetic phosphorus concentrations were slightly elevated in August. The flow of excess nutrients from the Inlets likely led to higher concentrations in the epilimnion. Hypolimnetic phosphorus concentrations were above the New Hampshire median in July, but were back down in August. The pond does experience depletion of dissolved oxygen in both the hypolimnion and metalimnion (middle water layer), which will cause phosphorus results to be higher. This is explained further in the Other Comments section below. However, this is the second year in a row that the mean phosphorus concentrations fell below the NH median in the hypolimnion. We would like to see this trend continue. One of the most important approaches to reducing phosphorus levels is educating the public. Humans introduce phosphorus to lakes by several means: fertilizing lawns, septic system failures, and detergents containing phosphates are just a few. Keeping the public aware of ways to reduce the input of phosphorus to lakes means less productivity in the lake. Contact the VLAP coordinator for tips on educating your lake residents or for ideas on testing your watershed for phosphorus inputs.

#### **OTHER COMMENTS**

- Conductivity appears to be increasing over the years in the White Oak Pond watershed (Table 6). Conductivity increases often indicate the influence of human activities on surface waters. Septic system leachate, agricultural runoff, iron deposits, and road runoff can all influence conductivity. It would be useful to uncover the reasons for increased conductivity as we continue to monitor the lake, although the levels remain relatively low. We will observe the conductivity trends of the watershed in the future.
- The #3 Dump site had lower phosphorus this year (Table 8), after a slight increase in 1999. We are pleased that the average concentration decreased. This concentration indicates that the nutrient level is good at this site. We will continue to monitor this inlet and hope the increase does not return.
- **Please note** in July the phosphorus concentration at #8 Brown Inlet was found to be less than 5 µg/L. The NHDES Laboratory Services adopted a new method of analyzing total phosphorus this year and the lowest value that can be recorded is 'less than 5 µg/L'. We would

like to remind the association that a reading of 5 µg/L is considered low for New Hampshire's waters.

- A new inlet was added to the sampling program at White Oak Pond this year. Cocchiaro Inlet had low phosphorus (Table 8), high conductivity (Table 6), and low turbidity (Table 11) in July. The inlet was dry in August at the time of sampling. The monitor indicated that this inlet tends to run over the dirt road during the spring. It would be a good idea to sample above and below the road at this inlet during the spring runoff this year to see if the water quality is affected. Also, determining the source of the inlet and the land uses in its watershed will help us to understand where pollutants might be entering. Contact the VLAP coordinator at (603) 271-2658 to discuss spring sampling.
- Dissolved oxygen was low at the bottom 5 meters of the pond in July (Table 9). The process of decomposition in the sediments depletes dissolved oxygen on the bottom of thermally stratified lakes. As bacteria break down organic matter, they deplete oxygen in the water. When oxygen gets below 1 mg/L, phosphorus normally bound up in the sediments may be released into the water column, a process that is referred to as *internal loading*. Depleted oxygen in the hypolimnion usually occurs as the summer progresses. This explains the higher phosphorus in the hypolimnion (lower water layer) versus the epilimnion (upper layer). Since an internal source of phosphorus to the lake is present, limiting or eliminating external phosphorus sources in the lake's watershed is even more important for lake protection.

#### **NOTES**

- Monitor's Note (7/20/00): #2 phosphorus bottle overflowed. Saw 2 loons.
- Monitor's Note (8/29/00): 1 meter phosphorus bottle slight overflow. Cocchiaro inlet dry. #8 low flow, so sample taken in pond close to inlet.

#### **USEFUL RESOURCES**

*Anthropogenic Phosphorus and New Hampshire Waterbodies*, NHDES-WSPCD-95-6, NHDES Booklet, (603) 271-3503

*The Wetlands Resource*, WD-WB-7, NHDES Fact Sheet, (603) 271-3503 or [www.state.nh.us](http://www.state.nh.us)

*Answers to Common Lake Questions*, NHDES-WSPCD-92-12, NHDES Booklet, (603) 271-3503.

*What is a Watershed?*, NH Lakes Association pamphlet, (603) 226-0299 or [www.nhlakes.org](http://www.nhlakes.org)

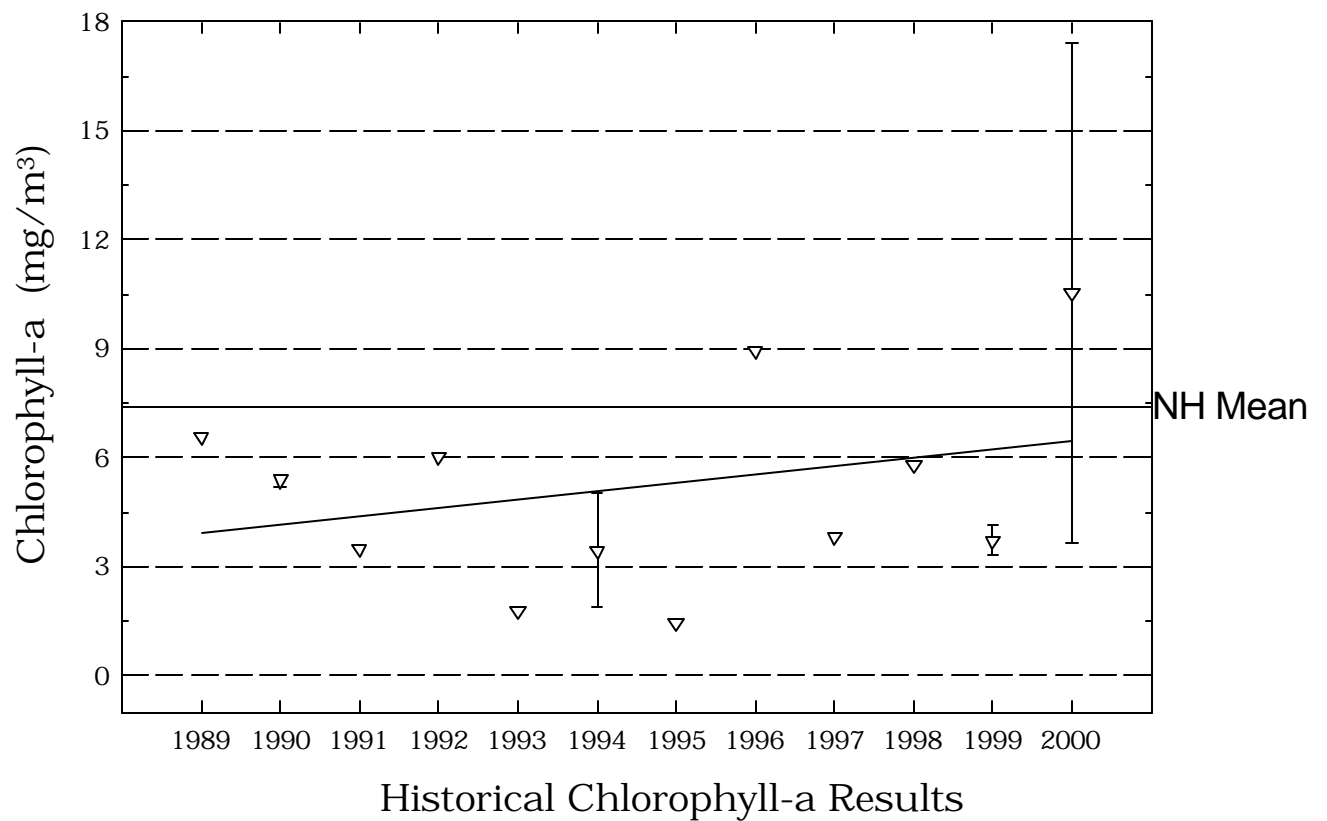
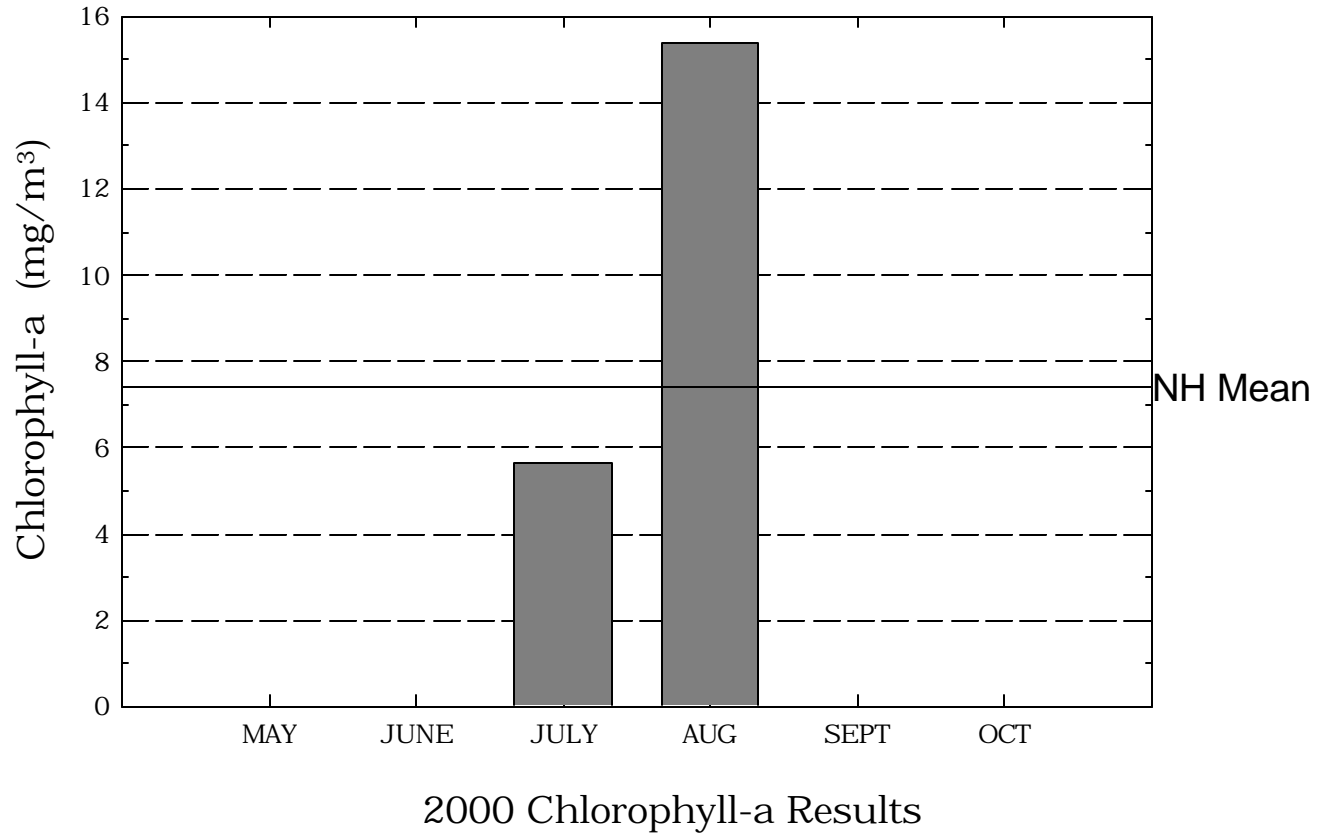
*Stormwater Management and Erosion and Sediment Control Handbook*. NHDES, Rockingham County Conservation District, USDA Natural Resource Conservation Service, 1992. (603) 772-4385.

*Save Our Streams Handbook for Wetlands Conservation and Sustainability*. (800) BUG-IWLA, or visit [www.iwla.org](http://www.iwla.org)

*Lake Eutrophication*, WD-BB-3, NHDES Fact Sheet, (603) 271-3503 or [www.state.nh.us](http://www.state.nh.us)

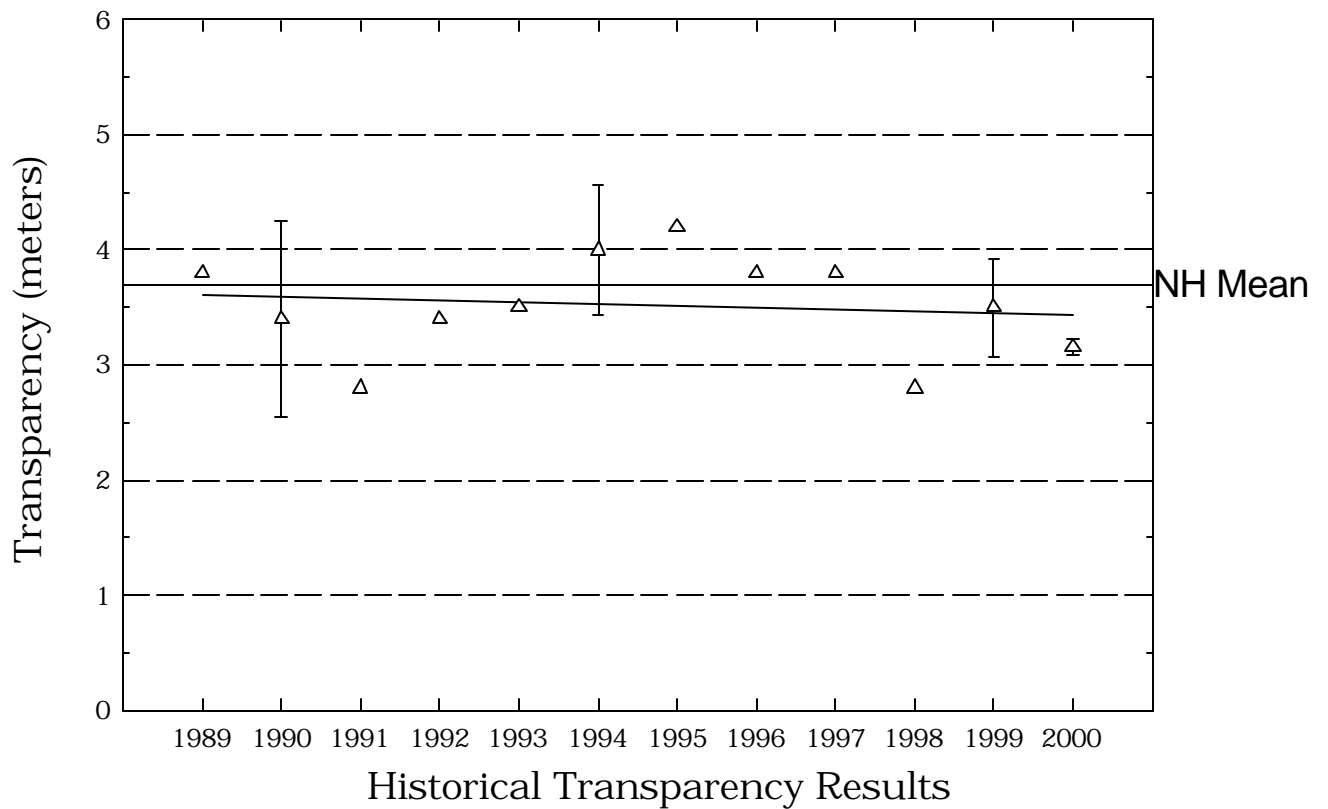
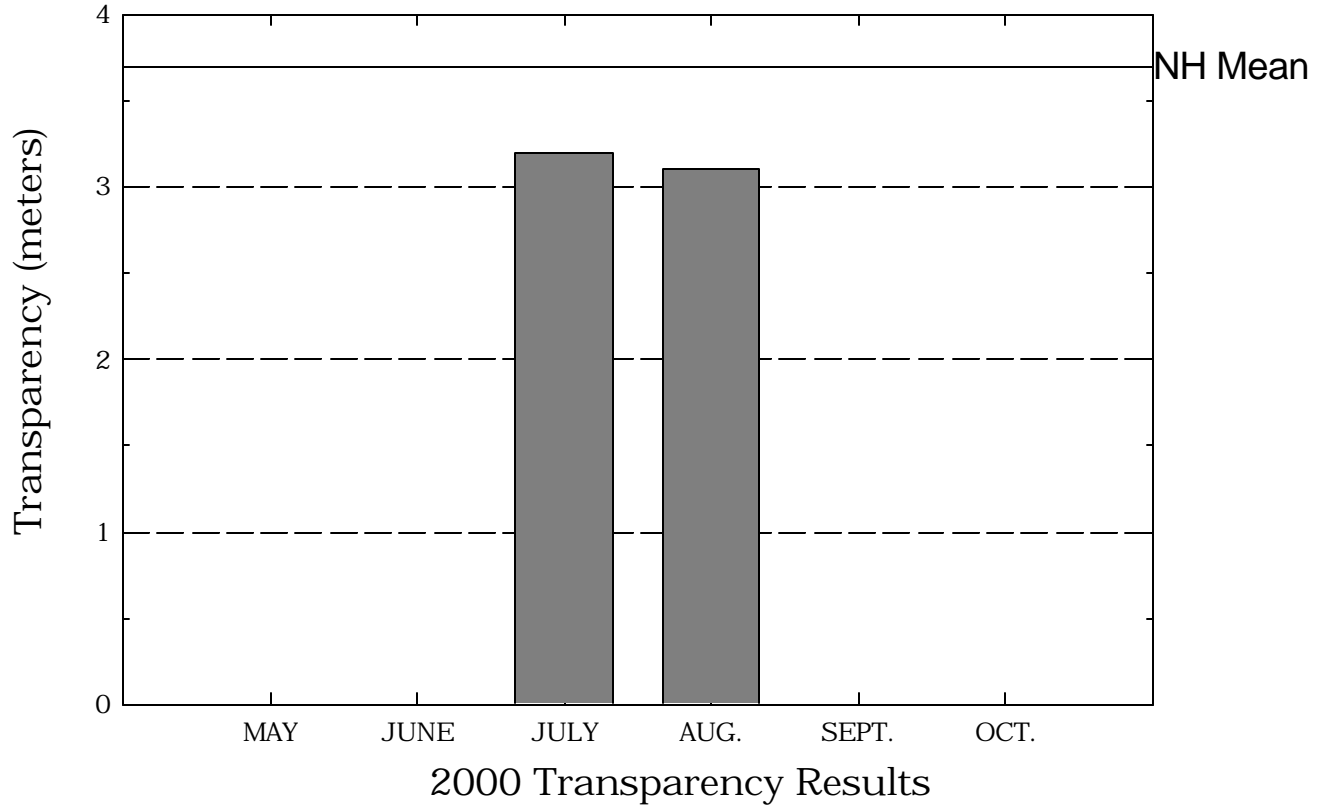
# White Oak Pond

**Figure 1.** Monthly and Historical Chlorophyll-a Results



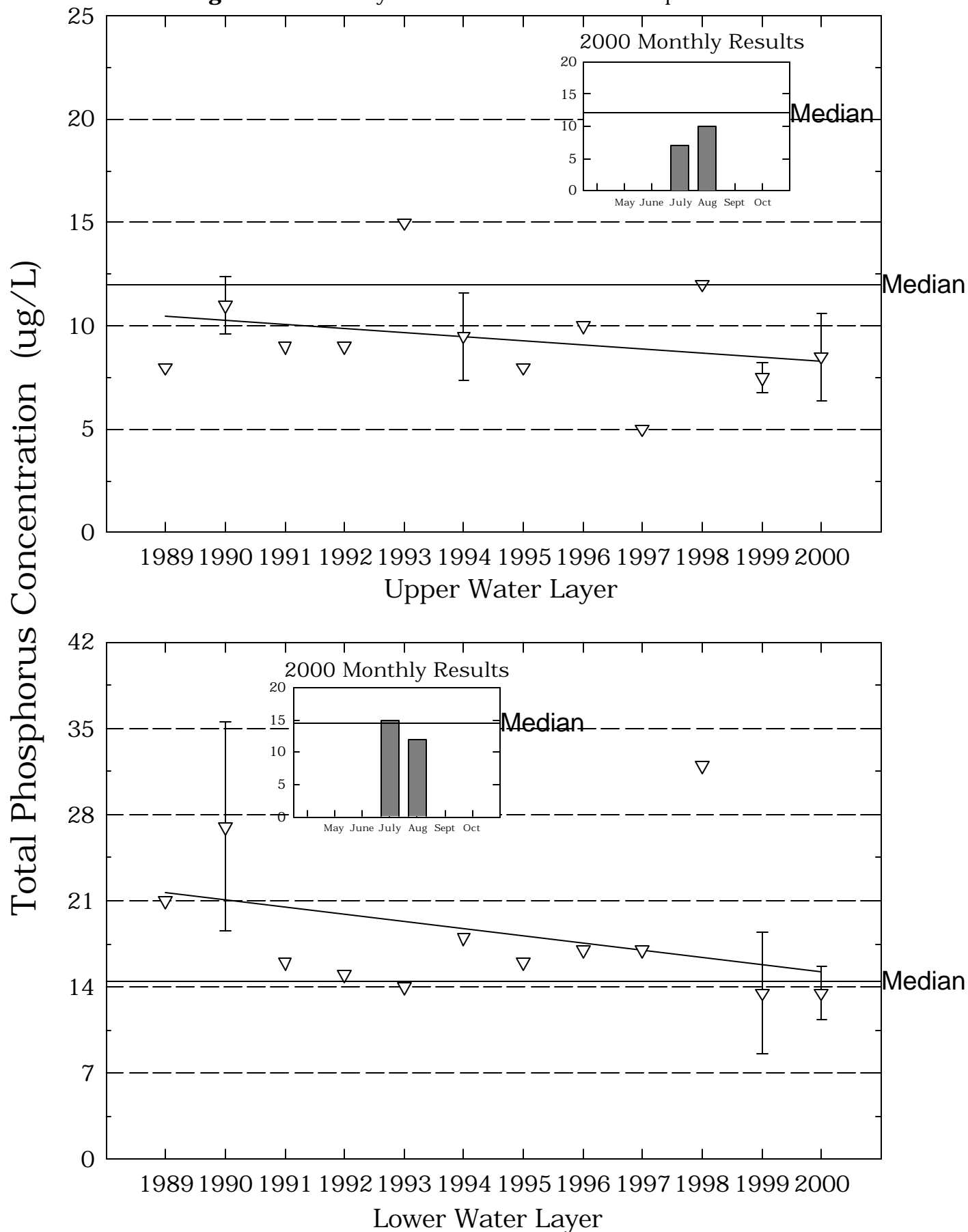
# White Oak Pond

**Figure 2.** Monthly and Historical Transparency Results



# White Oak Pond

**Figure 3.** Monthly and Historical Total Phosphorus Data.



**Table 1.****WHITE OAK POND  
HOLDERNESS****Chlorophyll-a results (mg/m<sup>3</sup>) for current year and historical  
sampling periods.**

<b>Year</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>
1989	6.58	6.58	6.58
1990	5.27	5.50	5.38
1991	3.48	3.48	3.48
1992	6.02	6.02	6.02
1993	1.78	1.78	1.78
1994	2.35	4.55	3.45
1995	1.47	1.47	1.47
1996	8.94	8.94	8.94
1997	3.84	3.84	3.84
1998	5.80	5.80	5.80
1999	3.44	4.01	3.72
2000	5.66	15.39	10.52



**Table 2.**

**WHITE OAK POND  
HOLDERNESS**

**Phytoplankton species and relative percent abundance.**

**Summary for current and historical sampling seasons.**

<b>Date of Sample</b>	<b>Species Observed</b>	<b>Relative % Abundance</b>
08/16/1989	ASTERIONELLA CHRYSOSPHAERELLA TABELLARIA	46
06/12/1990	DINOBRYON ASTERIONELLA	18 67
07/17/1990	CHRYSOSPHAERELLA	55
06/08/1991	ASTERIONELLA	95
06/27/1992	CHRYSOSPHAERELLA ASTERIONELLA RHIZOLENIA	39 36 12
06/19/1993	ASTERIONELLA TABELLARIA	63 23
06/24/1994	ASTERIONELLA RHIZOLENIA SYNURA	43 22 18
08/09/1994	DINOBRYON CHRYSOSPHAERELLA	76 20
08/07/1995	TABELLARIA SPHAEROCYSTIS RHIZOLENIA	44 21 6
08/06/1996	DINOBRYON SYNURA CERATIUM	54 22 5
08/14/1997	ASTERIONELLA STAUSTRUM MELOSIRA	80 10 6

**Table 2.****WHITE OAK POND  
HOLDERNESS****Phytoplankton species and relative percent abundance.****Summary for current and historical sampling seasons.**

<b>Date of Sample</b>	<b>Species Observed</b>	<b>Relative % Abundance</b>
08/19/1998	SYNURA	82
	CHRYSOSPHERELLA	8
	STAUSTRUM	5
06/21/1999	TABELLARIA	42
	CHRYSOSPHERELLA	18
	ASTERIONELLA	17
08/26/1999	SYNURA	31
	RHIZOLENIA	20
	TABELLARIA	14
07/20/2000	CHRYSOSPHERELLA	35
	DINOBRYON	35
	SYNURA	17

**Table 3.****WHITE OAK POND  
HOLDERNESS****Summary of current and historical Secchi Disk  
transparency results (in meters).**

<b>Year</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>
1989	3.8	3.8	3.8
1990	2.8	4.0	3.4
1991	2.8	2.8	2.8
1992	3.4	3.4	3.4
1993	3.5	3.5	3.5
1994	3.6	4.4	4.0
1995	4.2	4.2	4.2
1996	3.8	3.8	3.8
1997	3.8	3.8	3.8
1998	2.8	2.8	2.8
1999	3.2	3.8	3.5
2000	3.1	3.2	3.1

**Table 4.**

**WHITE OAK POND  
HOLDERNESS**

**pH summary for current and historical sampling seasons.  
Values in units, listed by station and year.**

<b>Station</b>	<b>Year</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>
#10 COXBORO RD	1991	6.62	6.62	6.62
	1994	6.81	7.80	7.07
	1995	5.61	5.61	5.61
	1996	6.53	6.53	6.53
	1997	6.47	6.47	6.47
	1998	6.50	6.50	6.50
#10 COXBORO ROAD/BEA	1992	6.65	6.65	6.65
	1993	6.40	6.40	6.40
#2 LAMB SWAMP INLET	1989	6.10	6.10	6.10
	1990	6.09	6.09	6.09
	1991	6.75	6.75	6.75
	1992	6.16	6.16	6.16
	1993	6.39	6.39	6.39
	1994	6.61	7.12	6.79
	1995	6.00	6.00	6.00
	1996	6.45	6.45	6.45
	1997	6.18	6.18	6.18
	1999	6.03	6.03	6.03
	2000	6.34	6.42	6.38
#3 DUMP	1991	6.77	6.77	6.77
	1993	6.55	6.55	6.55

**Table 4.****WHITE OAK POND  
HOLDERNESS**

**pH summary for current and historical sampling seasons.**  
**Values in units, listed by station and year.**

<b>Station</b>	<b>Year</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>
#4 OUTLET	1994	6.89	7.65	7.12
	1995	6.24	6.24	6.24
	1996	6.58	6.58	6.58
	1997	6.70	6.70	6.70
	1999	6.44	6.81	6.59
	2000	6.66	6.71	6.68
#5 PERRY FRANK INLET	1989	6.81	6.81	6.81
	1990	6.67	6.67	6.67
	1991	6.95	6.95	6.95
	1994	6.85	7.82	7.11
	1995	6.51	6.51	6.51
	1996	6.68	6.68	6.68
	1997	6.66	6.66	6.66
	1998	6.57	6.57	6.57
	1999	6.53	7.20	6.75
	2000	6.74	6.87	6.80
#6 STONE BRIDGE	1990	6.60	6.60	6.60
	1994	6.47	6.47	6.47
	1995	6.16	6.16	6.16
	1996	6.45	6.45	6.45
#6 STONE BRIDGE	1990	6.58	6.58	6.58
	1991	6.97	6.97	6.97
	1992	6.82	6.82	6.82
	1994	6.80	7.70	7.05

**Table 4.**

**WHITE OAK POND  
HOLDERNESS**

**pH summary for current and historical sampling seasons.  
Values in units, listed by station and year.**

<b>Station</b>	<b>Year</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>
	1995	6.03	6.03	6.03
	1996	6.64	6.64	6.64
	1997	6.80	6.80	6.80
	1998	6.67	6.67	6.67
	1999	6.64	7.09	6.81
	2000	6.71	6.84	6.77
#7 LEVIN INLET				
	1989	6.56	6.56	6.56
	1990	6.13	6.13	6.13
	1992	6.22	6.22	6.22
	1993	6.45	6.45	6.45
	1994	6.85	7.71	7.09
	1995	6.42	6.42	6.42
	1996	6.75	6.75	6.75
	1997	6.77	6.77	6.77
	1998	6.59	6.59	6.59
	1999	7.07	7.07	7.07
	2000	6.73	6.77	6.75
#8 BROWN INLET				
	1989	6.82	6.82	6.82
	1990	6.25	6.25	6.25
	1993	6.46	6.46	6.46
	1994	6.66	7.13	6.83
	1995	5.71	5.71	5.71
	1996	6.73	6.73	6.73
	1997	6.37	6.37	6.37
	1998	6.37	6.37	6.37

**Table 4.**

**WHITE OAK POND  
HOLDERNESS**

**pH summary for current and historical sampling seasons.  
Values in units, listed by station and year.**

<b>Station</b>	<b>Year</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>
#9 E HOLDERNESS RD	2000	6.56	6.69	6.62
	1991	6.21	6.21	6.21
	1992	6.76	6.76	6.76
	1993	6.64	6.64	6.64
	1994	6.70	7.57	6.95
	1995	6.09	6.09	6.09
	1996	6.67	6.67	6.67
	1997	6.57	6.57	6.57
	1998	6.51	6.51	6.51
BROWNS SWAMP	1991	6.78	6.78	6.78
COCCHIARO INLET	2000	7.28	7.28	7.28
EPILIMNION	1989	6.70	6.70	6.70
	1990	6.64	6.95	6.77
	1991	6.96	6.96	6.96
	1992	6.81	6.81	6.81
	1993	6.67	6.67	6.67
	1994	6.81	7.75	7.06
	1995	6.25	6.25	6.25
	1996	6.48	6.48	6.48
	1997	6.78	6.78	6.78
	1998	6.60	6.60	6.60
	1999	6.68	7.39	6.90

**Table 4.**

**WHITE OAK POND  
HOLDERNESS**

**pH summary for current and historical sampling seasons.  
Values in units, listed by station and year.**

<b>Station</b>	<b>Year</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>
EPILIMNION				
	2000	6.72	6.77	6.74
HYPOLIMNION				
	1989	6.36	6.36	6.36
	1990	6.04	6.25	6.13
	1991	5.91	5.91	5.91
	1992	5.18	5.18	5.18
	1993	6.04	6.04	6.04
	1994	6.12	6.59	6.29
	1995	5.55	5.55	5.55
	1996	6.01	6.01	6.01
	1997	6.09	6.09	6.09
	1998	6.14	6.14	6.14
	1999	6.12	6.14	6.13
	2000	6.22	6.85	6.43
METALIMNION				
	1989	6.17	6.17	6.17
	1990	6.52	6.56	6.54
	1991	6.85	6.85	6.85
	1992	5.59	5.59	5.59
	1993	6.37	6.37	6.37
	1994	6.71	7.11	6.87
	1995	5.35	5.35	5.35
	1996	6.01	6.01	6.01
	1997	6.32	6.32	6.32
	1998	5.95	5.95	5.95



**Table 4.**

**WHITE OAK POND  
HOLDERNESS**

**pH summary for current and historical sampling seasons.  
Values in units, listed by station and year.**

<b>Station</b>	<b>Year</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>
	1999	6.15	6.57	6.31
	2000	6.43	6.50	6.46

**Table 5.****WHITE OAK POND  
HOLDERNESS**

**Summary of current and historical Acid Neutralizing Capacity.  
Values expressed in mg/L as CaCO<sub>3</sub>.**

**Epilimnetic Values**

<b>Year</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>
1989	4.80	4.80	4.80
1990	4.70	4.90	4.80
1991	6.20	6.20	6.20
1992	5.70	5.70	5.70
1993	5.40	5.40	5.40
1994	4.10	5.30	4.70
1996	5.20	5.20	5.20
1997	5.00	5.00	5.00
1998	6.50	6.50	6.50
1999	2.80	6.40	4.60
2000	5.00	5.20	5.10

**Table 6.**

**WHITE OAK POND  
HOLDERNESS**

**Specific conductance results from current and historic  
sampling seasons. Results in uMhos/cm.**

<b>Station</b>	<b>Year</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>
#10 COXBORO RD	1991	30.5	30.5	30.5
	1994	38.6	50.2	44.4
	1995	30.9	30.9	30.9
	1996	44.8	44.8	44.8
	1997	50.4	50.4	50.4
	1998	43.3	43.3	43.3
#10 COXBORO ROAD/BEA	1992	33.2	33.2	33.2
	1993	34.6	34.6	34.6
#2 LAMB SWAMP INLET	1989	35.6	35.6	35.6
	1990	32.8	32.8	32.8
	1991	59.3	59.3	59.3
	1992	35.6	37.9	36.7
	1993	33.9	33.9	33.9
	1994	33.5	39.1	36.3
	1995	37.1	37.1	37.1
	1996	41.2	41.2	41.2
	1997	38.1	38.1	38.1
	1999	44.6	44.6	44.6
	2000	47.2	47.9	47.5
#3 DUMP	1991	38.5	38.5	38.5
	1992	37.1	37.1	37.1
	1993	35.9	35.9	35.9

Table 6.

**WHITE OAK POND  
HOLDERNESS**

**Specific conductance results from current and historic  
sampling seasons. Results in uMhos/cm.**

<b>Station</b>	<b>Year</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>
	1994	35.7	38.3	37.0
	1995	37.2	37.2	37.2
	1996	41.3	41.3	41.3
	1997	38.7	38.7	38.7
	1999	44.7	45.7	45.2
	2000	46.6	46.9	46.8
#4 OUTLET				
	1989	36.1	36.1	36.1
	1990	36.9	36.9	36.9
	1991	36.1	36.1	36.1
	1992	36.8	36.8	36.8
	1994	35.0	38.9	36.9
	1995	37.1	37.1	37.1
	1996	40.8	40.8	40.8
	1997	39.0	39.0	39.0
	1998	39.2	39.2	39.2
	1999	45.4	45.5	45.4
	2000	46.5	46.7	46.6
#5 PERRY FRANK INLET				
	1990	47.3	47.3	47.3
	1992	59.1	59.1	59.1
	1994	88.5	88.5	88.5
	1995	75.2	75.2	75.2
	1996	53.6	53.6	53.6
#6 STONE BRIDGE				
	1990	32.9	32.9	32.9
	1991	31.9	31.9	31.9

**Table 6.**

**WHITE OAK POND  
HOLDERNESS**

**Specific conductance results from current and historic  
sampling seasons. Results in uMhos/cm.**

<b>Station</b>	<b>Year</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>
	1992	32.3	35.8	34.0
	1994	31.9	43.6	37.7
	1995	40.0	40.0	40.0
	1996	45.1	45.1	45.1
	1997	46.6	46.6	46.6
	1998	43.4	43.4	43.4
	1999	45.9	73.0	59.4
	2000	42.9	53.6	48.2
#7 LEVIN INLET				
	1989	34.6	34.6	34.6
	1990	17.2	17.2	17.2
	1992	21.8	30.7	26.2
	1993	36.2	36.2	36.2
	1994	34.6	38.5	36.5
	1995	36.8	36.8	36.8
	1996	40.3	40.3	40.3
	1997	38.5	38.5	38.5
	1998	38.6	38.6	38.6
	1999	45.4	45.4	45.4
	2000	46.0	46.7	46.4
#8 BROWN INLET				
	1989	35.5	35.5	35.5
	1990	25.1	25.1	25.1
	1992	28.3	28.3	28.3
	1993	31.4	31.4	31.4
	1994	28.9	35.9	32.4
	1995	29.4	29.4	29.4

**Table 6.**

**WHITE OAK POND  
HOLDERNESS**

**Specific conductance results from current and historic  
sampling seasons. Results in uMhos/cm.**

<b>Station</b>	<b>Year</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>
	1996	41.1	41.1	41.1
	1997	37.5	37.5	37.5
	1998	32.6	32.6	32.6
	2000	27.0	46.8	36.9
#9 E HOLDERNESS RD				
	1991	39.5	39.5	39.5
	1992	58.7	64.4	61.5
	1993	61.1	61.1	61.1
	1994	61.2	67.3	64.2
	1995	65.5	65.5	65.5
	1996	72.6	72.6	72.6
	1997	75.1	75.1	75.1
	1998	90.0	90.0	90.0
BROWNS SWAMP				
	1991	34.8	34.8	34.8
COCCHIARO INLET				
	2000	136.3	136.3	136.3
EPILIMNION				
	1989	35.8	35.8	35.8
	1990	36.9	37.3	37.1
	1991	37.0	37.0	37.0
	1992	37.8	37.8	37.8
	1993	37.1	37.1	37.1
	1994	35.1	38.7	36.9
	1995	37.3	37.3	37.3
	1996	40.1	40.1	40.1

**Table 6.**

**WHITE OAK POND  
HOLDERNESS**

**Specific conductance results from current and historic  
sampling seasons. Results in uMhos/cm.**

<b>Station</b>	<b>Year</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>
	1997	39.0	39.0	39.0
	1998	39.1	39.1	39.1
	1999	44.2	45.7	44.9
	2000	46.3	46.7	46.5
HYPOLIMNION	1989	49.0	49.0	49.0
	1990	38.4	44.0	41.2
	1991	39.5	39.5	39.5
	1992	39.1	39.1	39.1
	1993	37.2	37.2	37.2
	1994	34.0	44.1	39.0
	1995	37.3	37.3	37.3
	1996	43.6	43.6	43.6
	1997	42.6	42.6	42.6
	1998	50.8	50.8	50.8
	1999	46.1	56.5	51.3
	2000	46.5	52.9	49.7
METALIMNION	1989	42.3	42.3	42.3
	1990	37.3	38.5	37.9
	1991	37.1	37.1	37.1
	1992	38.2	38.2	38.2
	1993	35.4	35.4	35.4
	1994	34.1	39.0	36.5
	1995	37.5	37.5	37.5
	1996	40.5	40.5	40.5
	1997	40.0	40.0	40.0

**Table 6.**

**WHITE OAK POND  
HOLDERNESS**

**Specific conductance results from current and historic  
sampling seasons. Results in uMhos/cm.**

<b>Station</b>	<b>Year</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>
	1998	40.4	40.4	40.4
	1999	43.7	45.8	44.7
	2000	47.1	49.3	48.2



**Table 8.**

**WHITE OAK POND  
HOLDERNESS**

**Summary historical and current sampling season Total  
Phosphorus data. Results in ug/L.**

<b>Station</b>	<b>Year</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>
#10 COXBORO RD	1991	18	18	18
	1994	18	24	21
	1995	15	15	15
	1996	20	20	20
	1997	20	20	20
	1998	49	49	49
#10 COXBORO ROAD/BEA	1992	14	14	14
	1993	22	22	22
#2 LAMB SWAMP INLET	1989	22	22	22
	1990	16	16	16
	1991	18	18	18
	1992	13	23	18
	1993	18	18	18
	1994	11	35	23
	1995	14	14	14
	1996	9	9	9
	1997	10	10	10
	1999	15	15	15
	2000	8	14	11
#3 DUMP	1991	15	15	15
	1992	10	10	10
	1993	10	10	10

**Table 8.**

**WHITE OAK POND  
HOLDERNESS**

**Summary historical and current sampling season Total  
Phosphorus data. Results in ug/L.**

<b>Station</b>	<b>Year</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>
	1994	17	23	20
	1995	7	7	7
	1996	9	9	9
	1997	4	4	4
	1999	13	14	13
	2000	6	10	8
#4 OUTLET				
	1989	7	7	7
	1990	10	10	10
	1991	11	11	11
	1992	8	8	8
	1994	10	10	10
	1995	7	7	7
	1996	8	8	8
	1997	6	6	6
	1998	13	13	13
	1999	9	11	10
	2000	6	10	8
#5 PERRY FRANK INLET				
	1990	7	7	7
	1992	13	13	13
	1994	13	13	13
	1995	4	4	4
	1996	14	14	14
#6 STONE BRIDGE				
	1990	32	32	32
	1991	28	28	28

**Table 8.**

**WHITE OAK POND  
HOLDERNESS**

**Summary historical and current sampling season Total  
Phosphorus data. Results in ug/L.**

<b>Station</b>	<b>Year</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>
	1992	14	18	16
	1994	22	24	23
	1995	14	14	14
	1996	24	24	24
	1997	18	18	18
	1998	15	15	15
	1999	7	32	19
	2000	14	25	19
#7 LEVIN INLET				
	1989	9	9	9
	1990	21	21	21
	1992	32	41	36
	1993	13	13	13
	1994	15	17	16
	1995	8	8	8
	1996	12	12	12
	1997	4	4	4
	1998	11	11	11
	1999	7	7	7
	2000	6	8	7
#8 BROWN INLET				
	1989	7	7	7
	1990	3	3	3
	1992	4	4	4
	1993	5	5	5
	1994	8	51	29
	1995	6	6	6

**Table 8.**

**WHITE OAK POND  
HOLDERNESS**

**Summary historical and current sampling season Total  
Phosphorus data. Results in ug/L.**

<b>Station</b>	<b>Year</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>
	1996	11	11	11
	1997	5	5	5
	1998	8	8	8
	2000	< 5	9	7
#9 E HOLDERNESS RD				
	1991	38	38	38
	1992	17	23	20
	1993	19	19	19
	1994	22	24	23
	1995	35	35	35
	1996	24	24	24
	1997	13	13	13
	1998	23	23	23
BROWNS SWAMP				
	1991	12	12	12
COCCHIARO INLET				
	2000	5	5	5
EPILIMNION				
	1989	8	8	8
	1990	10	12	11
	1991	9	9	9
	1992	9	9	9
	1993	15	15	15
	1994	8	11	9
	1995	8	8	8
	1996	10	10	10

**Table 8.**

**WHITE OAK POND  
HOLDERNESS**

**Summary historical and current sampling season Total  
Phosphorus data. Results in ug/L.**

<b>Station</b>	<b>Year</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>
	1997	5	5	5
	1998	12	12	12
	1999	7	8	7
	2000	7	10	8
HYPOLIMNION				
	1989	21	21	21
	1990	21	33	27
	1991	16	16	16
	1992	15	15	15
	1993	14	14	14
	1994	18	18	18
	1995	16	16	16
	1996	17	17	17
	1997	17	17	17
	1998	32	32	32
	1999	10	17	13
	2000	12	15	13
METALIMNION				
	1989	19	19	19
	1990	7	18	12
	1991	10	10	10
	1992	10	10	10
	1993	13	13	13
	1994	9	10	9
	1995	9	9	9
	1996	10	10	10
	1997	8	8	8

**Table 8.**

**WHITE OAK POND  
HOLDERNESS**

**Summary historical and current sampling season Total  
Phosphorus data. Results in ug/L.**

<b>Station</b>	<b>Year</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>
	1998	14	14	14
	1999	8	11	9
	2000	11	15	13

**Table 9.**  
**WHITE OAK POND**  
**HOLDERNESS**

**Current year dissolved oxygen and temperature data.**

<b>Depth</b> (meters)	<b>Temperature</b> (celsius)	<b>Dissolved Oxygen</b> (mg/L)	<b>Saturation</b> (%)
<b>July 20, 2000</b>			
0.1	21.1	7.3	81.8
1.0	21.1	7.2	81.0
2.0	20.9	7.1	79.6
3.0	20.8	6.9	77.6
4.0	20.7	6.8	75.9
5.0	15.1	0.2	2.1
6.0	12.2	0.2	1.5
7.0	11.2	0.2	1.6
8.0	10.9	0.2	1.6
9.0	10.7	0.2	1.8
10.0	10.5	0.2	2.2

**Table 10.**

**WHITE OAK POND  
HOLDERNESS**

**Historic Hypolimnetic dissolved oxygen and temperature data.**

<b>Date</b>	<b>Depth</b> (meters)	<b>Temperature</b> (celsius)	<b>Dissolved Oxygen</b> (mg/L)	<b>Saturation</b> (%)
August 16, 1989	9.0	10.0	0.1	1.0
June 9, 1990	9.5	10.0	3.2	28.3
July 17, 1990	10.5	10.0	0.2	1.8
June 8, 1991	9.0	9.2	3.8	32.9
June 27, 1992	10.0	8.7	0.6	5.1
June 19, 1993	9.5	9.0	2.8	24.0
June 24, 1994	8.0	11.7	3.2	29.0
June 24, 1994	10.0	11.4	3.0	26.0
August 7, 1995	9.0	11.5	0.1	1.0
August 6, 1996	9.5	12.2	0.2	2.0
August 14, 1997	0.1	22.6	7.9	89.0
August 14, 1997	9.0	11.2	0.6	5.0
August 19, 1998	9.0	12.4	0.2	2.0
August 26, 1999	9.5	11.1	0.6	5.4
July 20, 2000	10.0	10.5	0.2	2.2



**Table 11.**

**WHITE OAK POND  
HOLDERNESS**

**Summary of current year and historic turbidity sampling.  
Results in NTU's.**

<b>Station</b>	<b>Year</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>
#10 COXBORO RD	1997	4.5	4.5	4.5
	1998	1.5	1.5	1.5
#2 LAMB SWAMP INLET	1997	0.3	0.3	0.3
	1999	0.5	0.5	0.5
	2000	0.2	0.3	0.3
#3 DUMP	1997	0.2	0.2	0.2
	1999	0.5	0.6	0.5
	2000	0.4	0.4	0.4
#4 OUTLET	1997	0.4	0.4	0.4
	1998	0.8	0.8	0.8
	1999	0.3	0.6	0.5
	2000	0.4	0.4	0.4
#6 STONE BRIDGE	1997	0.5	0.5	0.5
	1998	0.2	0.2	0.2
	1999	0.4	1.0	0.7
	2000	0.5	1.0	0.8
#7 LEVIN INLET	1997	0.3	0.3	0.3
	1998	0.9	0.9	0.9
	1999	0.3	0.3	0.3
	2000	0.4	0.5	0.4

**Table 11.**

**WHITE OAK POND  
HOLDERNESS**

**Summary of current year and historic turbidity sampling.  
Results in NTU's.**

<b>Station</b>	<b>Year</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>
#8 BROWN INLET	1997	0.1	0.1	0.1
	1998	0.1	0.1	0.1
	2000	0.1	0.5	0.3
#9 E HOLDERNESS RD	1997	1.6	1.6	1.6
	1998	4.8	4.8	4.8
COCCHIARO INLET	2000	0.2	0.2	0.2
EPILIMNION	1997	0.3	0.3	0.3
	1998	0.1	0.1	0.1
	1999	0.4	0.5	0.5
	2000	0.4	0.4	0.4
HYPOLIMNION	1997	4.5	4.5	4.5
	1998	2.7	2.7	2.7
	1999	1.0	3.5	2.2
	2000	0.7	0.8	0.7
METALIMNION	1997	0.4	0.4	0.4
	1998	1.8	1.8	1.8
	1999	0.6	0.6	0.6
	2000	0.6	1.0	0.8

**Table 12.**

**WHITE OAK POND  
HOLDERNESS**

**Summary of current year bacteria sampling.  
Results in counts per 100ml.**

<b>Location</b>	<b>Date</b>	<b>E. Coli</b>
		See Note Below
#3 DUMP	August 29	0
UNLABELED	August 29	1